audit trail

A record of the source of each data item and when it entered a system. In addition to recording the original source, an audit trail must show how and when data is accessed or changed, and by whom. All these actions must be logged in an audit trail file and monitored carefully.

authorization zone

Part of a form that contains any required signatures.

automated fax

A system that allows a customer to request a fax using email, the company website, or a telephone. The response is transmitted in a matter of seconds back to the user's fax machine.

batch

A group of data, usually inputted into an information system at the same time.

batch control

A total used to verify batch input. Batch controls might check data items such as record counts and numeric field totals. For example, before entering a batch of orders, a user might calculate the total number of orders and the sum of all the order quantities. When the batch of orders is entered, the order system also calculates the same two totals. If the system totals do not match the input totals, then a data entry error has occurred.

batch input

A process where data entry is performed on a specified time schedule, such as daily, weekly, monthly, or longer. For example, batch input occurs when a payroll department collects time cards at the end of the week and enters the data as a batch.

blog

An online journal. The term is a contraction of "web log."

calendar control

A calendar control allows the user to select a date that the system will display and store as a field value.

character-based report

A report created using a single mono-spaced character set.

check box

Used to select one or more choices from a group. A check mark, or an X, represents selected options.

combination check

A type of data validation check that is performed on two or more fields to ensure that they are consistent or reasonable when considered together. Even though all the fields involved in a combination check might pass their individual validation checks, the combination of the field values might be inconsistent or unreasonable.

command button

Onscreen button that initiates an action such as printing a form or requesting Help.

computer output to microfilm (COM)

Scanning and storing images of paper documents. Often used by large firms to provide high-quality records management and archiving.

context-sensitive

A feature that is sensitive to the current conditions when it is invoked. For example, context-sensitive help offers assistance for a task in progress.

control break

A control break usually causes specific actions to occur, such as printing subtotals for a group of records.

control break report

A detail report that focuses on control breaks

control field order

In a control break report, the records are arranged or sorted in the same order as the control fields

data security

Protection of data from loss or damage and recovers data when it is lost or damaged.

data type check

A type of data validation check that is used to ensure that a data item fits the required data type. For example, a numeric field must have only numbers or numeric symbols, and an alphabetic field can contain only the characters A through Z or the characters a through z

data validation rule

A mechanism to improve input quality by testing the data and rejecting any entry that fails to meet specified conditions.

default value

A value that a system displays automatically.

design prototyping (throwaway prototyping)

Creating a prototype of user requirements, after which the prototype is discarded and implementation continues. Also called throwaway prototyping.

detail report

A detail report produces one or more lines of output for each record processed.

dialog box

Allows a user to enter information about a task that a system will perform.

diskless workstation

A network terminal that supports a full-featured user interface, but limits the printing or copying of data, except to certain network resources that can be monitored and controlled more easily.

electronic health record (EHR)

An electronic record of a patient's health information generated as the patient encounters various health care providers and shared among multiple facilities and agencies.

exception report

A document displaying only those records that meet a specific condition or conditions. Exception reports are useful when the user wants information only on records that might require action, but does not need to know the details.

existence check

A type of data validation check that is used for mandatory data items. For example, if an employee record requires a Social Security number, an existence check would not allow the user to save the record until he or she enters a suitable value in the SSN field.

faxback

A system that allows a customer to request a fax using e-mail, the company website, or a telephone. The response is transmitted in a matter of seconds back to the user's fax machine.

form filling

A very effective method of online data entry where a blank form that duplicates or resembles the source document is completed on the screen. The user enters the data and then moves to the next field.

form layout

The physical appearance and placement of data on a form. Form layout makes the form easy to complete and provides enough space, both vertically and horizontally, for users to enter the data.

garbage in, garbage out (GIGO)

The concept that the quality of the output is only as good as the quality of the input.

graphical user interface (GUI)

The use of graphical objects and techniques allowing users to communicate with a system. A well-designed GUI can help users learn a new system rapidly, and work with the system effectively.

hash total

Not meaningful numbers themselves, but are useful for comparison purposes. Also known as batch control totals.

human-computer interaction (HCI)

A description of the relationship between computers and the people who use them to perform business-related tasks. HCI concepts apply to everything from a PC desktop to the main menu for a global network.

input control

The necessary measures to ensure that input data is correct, complete, and secure. A systems analyst must focus on input control during every phase of input design, starting with source documents that promote data accuracy and quality.

input mask

Template or pattern that makes it easier for users to enter data. Often used in automated forms to guide an unfamiliar user.

limit check

Occurs when a validation check involves a minimum or a maximum value, but not both. Checking that a payment amount is greater than zero, but not specifying a maximum value, is an example of a limit check.

list box

An output mechanism that displays a list of choices that the user can select.

menu bar

A set of user-selectable software application options, usually located across the top of the screen.

mock-up

When designing a report, a sample report is prepared, which is a mock-up, or prototype, for users to review. The sample should include typical field values and contain enough records to show all the design features.

module

Related program code organized into small units that are easy to understand and maintain. A complex program could have hundreds or even thousands of modules.

natural language

A software feature that allows users to type commands or requests in normal English (or other language) phrases.

online data entry

A data entry method used for most business activity. The online method offers major advantages, including the immediate validation and availability of data.

option button

Radio buttons that represent groups of options. The user can select only one option at a time; a selected option contains a black dot. See also radio button

output control

Methods to maintain output integrity and security. For example, every report should include an appropriate title, report number or code, printing date, and time period covered. Reports should have pages that are numbered consecutively, identified as Page xx of xx, and the end of the report should be labeled clearly.

output security

Output security protects privacy rights and shields the organization's proprietary data from theft or unauthorized access.

page footer

Appears at the bottom of the page and is used to display the name of the report and the page number.

page header

Appears at the top of the page and includes the column headings that identify the data

podcast

A web-based broadcast that allows a user to receive audio or multimedia files using music player software such as iTunes, and listen to them on a PC or download them to a portable MP3 player or smart phone.

port protector

Network-based security application that controls access to and from workstation interfaces.

prototyping

The method by which a prototype is developed. It involves a repetitive sequence of analysis, design, modeling, and testing. It is a common technique that can be used to design anything from a new home to a computer network.

radio button

See option button

range check

A type of data validation check that tests data items to verify that they fall between a specified minimum and maximum value. The daily hours worked by an employee, for example, must fall within the range of 0 to 24.

reasonableness check

A type of data validation check that identifies values that are questionable, but not necessarily wrong. For example, input payment values of $0.05 and $5,000,000.00 both pass a simple limit check for a payment value greater than zero, and yet both values could be errors.

records retention policy

Rules designed to meet all legal requirements and business needs for keeping records.

report header

Appears at the beginning of a report and identifies the report as well as the report title, date, and other necessary information.

RFID tag

An input device used in source data automation.

scroll bar

In user interface design, a scroll bar allows the user to move through the available choices for an input field.

sequence check

A type of data validation check that is used when the data must be in some predetermined sequence. If the user must enter work orders in numerical sequence, for example, then an out-of-sequence order number indicates an error. If the user must enter transactions chronologically, then a transaction with an out-of-sequence date indicates an error.

source data automation

A popular online input method that combines online data entry and automated data capture using input devices such as magnetic data strips, or swipe scanners.

source document

A form used to request and collect input data, trigger or authorize an input action, and provide a record of the original transaction. During the input design stage, you develop source documents that are easy to complete and inexpensive.

storyboard

Sketches used during prototyping to show the general screen layout and design.

summary report

A report used by individuals at higher levels in the organization that includes less detail than reports used by lower-level employees.

switchboard

The use of command buttons in a user interface to enable users to navigate a system and select from groups of related tasks.

system prototyping

Producing a full-featured, working model of the information system being developed.

systems design

The goal of systems design is to build a system that is effective, reliable, and maintainable.

toggle button

A GUI element used to represent on or off status. Clicking the toggle button switches to the other status.

toolbar

A GUI element that contains icons or buttons that represent shortcuts for executing common commands.

totals zone

If a form has data totals, they will appear in this section of the form.

transparent interface

A user interface that users don't really notice; a user-friendly interface that does not distract the user and calls no attention to itself.

turnaround document

Output document that is later entered back into the same or another information system. A telephone or utility bill, for example, might be a turnaround document printed by the company's billing system. When the bill is returned with payment, it is scanned into the company's accounts receivable system to record the payment accurately.

usability

In user interface design, includes user satisfaction, support for business functions, and system effectiveness.

usability metrics

Data that interface designers can obtain by using software that can record and measure user interactions with the system

user-centered

A term that indicates the primary focus is upon the user. In a user-centered system, the distinction blurs between input, output, and the interface itself.

validity check

A type of data validation check that is used for data items that must have certain values. For example, if an inventory system has 20 valid item classes, then any input item that does not match one of the valid classes will fail the check.

webcast

A one-way transmission of information or training materials, such as a Webinar session, available on demand or for a specific period to online participants.

functional decomposition diagram

can be used to provide a checklist of user tasks that must be included in the interface design

input mask

best describes a template or pattern that restricts data entry and prevents errors

user-approved sketches and storyboards

can be used to document the user interface

-----------------------------------------------------------------------------------------  
802.11

A family of wireless network specifications developed by the IEEE.

802.11ac

An IEEE wireless network specification, approved in 2014, that uses expanded multiple-input/multiple output (MIMO) technology to achieve theoretical speeds of nearly 7 Gbps while increasing the wireless range, and is backward-compatible with 802.11 a, b, g, and n.

802.11b

An IEEE wireless network specification introduced in 1999, based on a frequency of 2.4 GHz, and maximum bandwidth of 11 Mbps. Replaced by 802.11g.

802.11g

An IEEE wireless network specification introduced in 2003 based on a frequency of 2.4 GHz and maximum bandwidth of 54 Mbps; compatible with and replaced 802.11b, and has been superseded by the 802.11n standard.

802.11n

An IEEE wireless network specification adopted in 2009 that uses multiple-input/multiple output (MIMO) technology to achieve speeds of 200+ Mbps while increasing the wireless range, and is backward-compatible with 802.11 a, b, and g.

802.16

Specifications developed by the IEEE for broadband wireless communications over MANs (metropolitan area networks). See also Wi-Max.

access point

A central wireless device that provides network services to wireless clients.

application

Part of the information system, an application handles the input, manages the processing logic, and provides the required output.

application logic

The underlying business rules or logic for an application.

application server

A computer acting as "middlemen" between customers and an organization's databases and applications. Often used to facilitate complex b

bandwidth

The amount of data that the system can handle in a fixed time period. Bandwidth requirements are expressed in bits per second (bps).

Basic Service Set (BSS)

A wireless network configuration in which a central wireless device called an access point is used to serve all wireless clients; also called infrastructure mode.

Bluetooth

A form of wireless transmission very popular for short-distance wireless communication that does not require high power.

bus network

A computer network where a single communication path connects the mainframe computer, server, workstations, and peripheral devices. Information is transmitted in either direction from any workstation to another workstation, and any message can be directed to a specific device.

client/server architecture

Generally refers to systems that divide processing between one or more networked clients and a central server. In a typical client/server system, the client handles the entire user interface, including data entry, data query, and screen presentation logic. The server stores the data and provides data access and database management functions. Application logic is divided in some manner between the server and the clients.

client

Workstation that users interact with in a client/server design. These workstations, or computers, are supplied data, processing services, or other support from other computers, called servers.

corporate portal

A website that provides various tools and features for an organization's customers, employees, suppliers, and the public.

data frames

Traffic on a computer network

data processing center

A central location where physical data was delivered or transmitted in some manner and entered into the system. Users in the organization had no input or output capability, except for printed reports that were distributed by a corporate IT department.

distributed database management system (DDBMS)

A system for managing data stored at more than one location. Using a DDBMS offers several advantages: data stored closer to users can reduce network traffic; the system is scalable, so new data sites can be added without reworking the system design; and with data stored in various locations, the system is less likely to experience a catastrophic failure. A potential disadvantage of distributed data storage involves data security. It can be more difficult to maintain controls and standards when data is stored in various locations.

distributed system

Company-wide systems that are connected by one or more LANs or WANs. The capabilities of a distributed system depend on the power and capacity of the underlying data communication network.

Extended Service Set (ESS)

A wireless network configuration made up of two or more Basic Service Set (BSS) networks, which allows wireless clients to roam from BSS to BSS.

extensibility

Refers to a system's ability to expand, change, or downsize easily to meet the changing needs of a business enterprise. Also known as scalability.

fat client

A network design that locates all or most of the application processing logic at the client. Also called a thick client design.

glueware

See middleware.

Gbps (gigabits per second)

A bandwidth or throughput measurement indicating billions of bits per second.

hierarchical network

A network design where one computer (typically a mainframe) controls the entire network. Satellite computers or servers control lower levels of processing and network devices.

HTTP/2

The second major version of the network protocol used by the web. Released as a standard in 2015.

hub

The center of a star network. Switches in modern networks have largely replaced hubs.

infrastructure mode

A wireless network configuration in which a central wireless device called an access point is used to serve all wireless clients; also called Basic Service Set (BSS).

Institute of Electrical and Electronics Engineers (IEEE)

A professional organization that establishes standards for telecommunications.

Internet operating system

Part of the Web 2.0 model, an online computing environment created by online communities and services, based on layers of shared information that can contain text, sound bytes, images, and video clips.

knee of the curve

A performance characteristic of a client/server computing environment. Client/server response times tend to increase gradually, and then rise dramatically as the system nears its capacity. The point where response times increase dramatically.

legacy data

The data associated with an older, less technologically advanced legacy system.

local area network (LAN)

A network design that allows the sharing of data and hardware, such as printers and scanners. Advances in data communication technology have made it possible to create powerful networks that use satellite links, high-speed fiber-optic lines, or the Internet to share data.

logical topology

A view of a network that describes the way the components interact, rather than the actual network cabling and connections.

mainframe architecture

A system design where the server performs all the processing.

MAN (metropolitan area network)

A network that uses 802.16 standards, which are broadband wireless communications protocols.

Mbps (megabits per second)

A bandwidth or throughput measurement indicating millions of bits per second.

mesh network

A network design in which each node connects to every other node. While this design is very reliable, it is also expensive to install and maintain.

multipath design

A network design that relies on multiple data paths to increase bandwidth and range, using MIMO (multiple input/multiple output) technology.

multiple input/multiple output (MIMO)

A wireless networking technology incorporated in the IEEE 802.11n and 802.11ac standards that uses multiple data streams and multiple antennas to achieve higher transmission speeds and substantially increase wireless range over earlier standards.

net-centric computing

A distributed environment where applications and data are downloaded from servers and exchanged with peers across a network on as as-needed basis.

node

A physical device, wired or wireless, that can send, receive, or manage network data.

n-tier design

A network design where the user interface resides on the client, all data resides on the server, and the application logic can run either on the server or on the client, or be divided between the client and the server.

online system

Handling transactions when and where they occur and providing output directly to users. Because it is interactive, online processing avoids delays and allows a constant dialog between the user and the system.

OSI (Open Systems Interconnection) model

Describes how data actually moves from an application on one computer to an application on another networked computer. The OSI consists of seven layers, and each layer performs a specific function.

physical topology

The connection structure of an actual network's cabling.

platform

A specific hardware and software configuration that supports IT business goals such as hardware connectivity and easy integration of future applications. Also called environment.

point-of-sale (POS)

The part of an information system that handles daily sales transactions and maintains the online inventory file.

portal

An entrance to a multifunction website. After entering a portal, a user can navigate to a destination, using various tools and features provided by the portal designer.

proxy server

A networking device that provides Internet connectivity for internal LAN users.

ring network

A network resembling a circle of computers that communicate with each other. A ring network often is used when processing is performed at local sites rather than at a central location.

roaming

A process that allows wireless clients to move from one access point to another, automatically associating with the stronger access point and allowing for uninterrupted service.

router

A device that connects network segments, determines the most efficient data path, and guides the flow of data.

scaling on demand

The ability to match network resources to needs at any given time; a feature of cloud computing. For example, during peak loads, additional cloud servers might come on line automatically to support increased workloads.

semantic web

An evolution of the web where the documents shared on the Internet have semantics (meaning) and not just syntax (HTML markup). Sometimes called Web 3.0.

server

Computer in a client/server design that supplies data, processing, and services to client workstations.

stand-alone

When personal computers first appeared in large numbers in the 1990, users found that they could run their own word processing, spreadsheet, and database applications, without assistance from the IT group, in a mode called stand-alone computing

star network

A network design with a central device and one or more workstations connected to it in a way that forms a star pattern.

supply chain management (SCM)

The coordination, integration, and management of materials, information, and finances as they move from suppliers to customers, both within and between companies. In a totally integrated supply chain, a customer order could cause a production planning system to schedule a work order, which in turn could trigger a call for certain parts from one or more suppliers.

switch

Central networking device in a star network, which manages the network and acts as a conduit for all network traffic.

system architecture

A translation of the logical design of an information system into a physical structure that includes hardware, software, network support, and processing methods.

thick client

A system design that locates most or all of the application processing logic at the client. Also called a fat client design.

thin client

A system design that locates most or all of the processing logic at the server. The client/server relationship must specify how the processing will be divided between the client and the server. Which of the followig designs locates all or most of the processing logic at the server

three-tier design

In a three-tier design, the user interface runs on the client and the data is stored on the server, just as in a two-tier design. A three-tier design also has a middle layer between the client and server that processes the client requests and translates them into data access commands that can be understood and carried out by the server.

transparent

A network is transparent if a user sees the data as if it were stored on his or her own workstation.

two-tier design

A network design where the user interface resides on the client, all data resides on the server, and the application logic can run either on the server or on the client, or be divided between the client and the server.

web-centric

A strategy or approach that emphasizes a high degree of integration with other web-based components. A web-centric architecture follows Internet design protocols and enables a company to integrate the new application into its ecommerce strategy.

Wi-Fi (wireless fidelity)

Family of popular IEEE local area network wireless networking standards, also known as 802.11, including 802.11a, b, g, and n. 802.11n is the most recent standard. 802.11ac and 802.11ad are proposed new standards.

Wi-Fi Alliance

A nonprofit international association formed in 1999 to certify interoperability of wireless network products based on IEEE 802.11 specifications.

wide area network (WAN)

A network spanning long distances that can link users who are continents apart.

wiki

A web-based repository of information that anyone can access, contribute to, or modify

wireless access point (WAP)

A central wireless device that provides network services to wireless clients. Also called an access point.

wireless local area network (WLAN)

A wireless network that is relatively inexpensive to install and is well-suited to workgroups and users who are not anchored to a specific desk or location.

Wi-Max

IEEE 802.16 specifications, which are expected to enable wireless multimedia applications with a range of up to 30 miles. See also 802.16.

Every business information system must carry out three main functions

Manage applications that perform the processing logic  
  
Handle data storage and access  
  
Provide an interface that allows users to interact with the system

One of the purposes of database design is to choose data storage technologies that will efficiently, accurately, and securely process database activities.

TRUE

The network model is the most common style for a logical database model.

FALSE

Generally speaking, logical and physical database design is performed in parallel with other systems design steps.

TRUE

During logical modeling, the normalized data requirements from all user interfaces are combined into one consolidated logical database model.

FALSE

A file organization is an arrangement of related records in secondary memory so that individual and groups of records can be stored, retrieved, and updated rapidly.

TRUE

The primary deliverable from logical database design is a conceptual model.

FALSE

File and database design occurs in two steps.

TRUE

Object-oriented database models are the most frequently used database technologies for new information systems development.

FALSE

Each row of a relation corresponds to a record that contains data values for an entity.

TRUE

Referencing a relation, the sequence of columns cannot be interchanged without changing the meaning or use of the relation.

FALSE

A relation is said to be in second normal form when its nonprimary key attributes do not depend on each other.

FALSE

Normalization is based on an analysis of weak entities.

FALSE

An attribute can be functionally dependent on more than attribute.

TRUE

A relation is said to be in second normal form if the primary key consists of only one attribute.

TRUE

A relation is said to be in second normal form when there are no transitive dependencies.

FALSE

A derived field is a field that can be derived from other database fields.

TRUE

A null value is used to represent the zero digit in a relation.

FALSE

Generally speaking, a physical table corresponds to a relation.

FALSE

A physical file is a named set of table rows stored in a contiguous section of secondary memory.

TRUE

When using the sequential file organization, the addition of rows requires rewriting the file.

TRUE

Indexes should be used judiciously for databases that support transaction processing and other applications with heavy updating requirements.

TRUE

Random key retrieval on the primary key is comparatively slow with the hashed file organization.

FALSE

Multiple key retrieval is possible with the hashed file organization.

FALSE

Designing the database for an Internet-based electronic commerce application differs significantly from the process followed when designing the database for other types of applications.

FALSE

The most common style for a logical database model is the:

Relational database model

Which of the following is not a key step in logical database modeling and design?  
  
A) Combine normalized data requirements from all user interfaces into one consolidated logical database model.  
B) Compare the consolidated logical database design with the translated E-R model and produce, through view integration, one final logical database design for the application.  
C) Model how data flow through an information system, the relationships among the data flows, and how data come to be stored at specific locations.   
D) Translate the conceptual E-R data model for the application into normalized data requirements.

C

During physical design, you consider:  
  
A) the definitions of each attribute  
B) the descriptions of where and when data are entered, retrieved, deleted, and updated  
C) the expectations for response time and data integrity  
D) all of the above <------

D

Using relational notation, an attribute of a relation that is the primary key of another relation is indicated by:  
  
A) an underline  
B) a circle  
C) a dashed underline  
D) italics

C

A data model that represents data in the form of tables or relations is called a:  
  
A) hierarchical database model  
B) network database model  
C) relational database model  
D) hybrid database model

C

Which of the following is not a true statement regarding a relation?  
A) Each relation consists of a set of named columns and an arbitrary number of unnamed rows.  
B) Each column in a relation corresponds to an attribute of that relation.  
C) An entry at the intersection of each row and column has a single value.  
D) Each row in a relation corresponds to an attribute of that relation.

D

Which of the following properties of a relation states that an entry at the intersection of each row and column is single-valued?  
  
A) Entries in cells are simple.  
B) Entries in columns are from the same set of values.  
C) Each row is unique.  
D) The sequence of rows is insignificant.

A

The process of converting complex data structures into simple, stable data structures is referred to as:  
A) normalization  
B) simplification  
C) structuring  
D) process modeling

A

A particular relationship between two attributes best defines:  
A) context  
B) functional dependency  
C) normal form  
D) structure

B

The relation state specifying that nonprimary key attributes do not depend on other nonprimary key attributes is:  
  
A) first normal form  
B) second normal form  
C) Boyce-Codd normal form  
D) third normal form

D

To convert a relation to second normal form, you decompose the relation into new relations using the attributes, called:  
  
A) determinants  
B) foreign key  
C) pointer  
D) relationship key

A

Which of the following statements is true regarding normalization?  
  
A) Normalization is a top-down process.  
B) Normalization produces a set of well-structured relations that contain all of the data mentioned in system inputs and outputs.  
C) Through the use of anomalies, stable structures are produced.  
D) Normalization is an integrity constraint specifying that the value of an attribute in one relation depends on the value of the same attribute in another relation.

D

When transforming an E-R diagram into normalized relations, the identifier of the entity type becomes:  
  
A) the primary key of the corresponding relation  
B) the foreign key in the corresponding relation  
C) a nonkey attribute in the corresponding relation  
D) a secondary key in the corresponding relation

A

An entity whose primary key depends on the primary key of another entity is called a:  
  
A) referential entity  
B) candidate entity  
C) transitive entity  
D) weak entity

D

For a binary one-to-one relationship between two entities A and B, the relationship is represented by:  
  
A) adding the primary key of A as a foreign key of B  
B) adding the primary key of B as a foreign key of A  
C) combining the two entities into one relation  
D) either A or B

D

For a binary many-to-many relationship existing between entity types A and B:  
  
A) a separate relation C is created; the primary key of relation C is a composite key consisting of the primary key for each of the two entities in the relationship  
B) the primary keys of relation A and relation B are designated as functionally dependent attributes  
C) secondary keys are used to establish the relationship  
D) place the primary key of either entity in the relation for the other entity or do this for both entities.

A

If a relationship exists among three or more entities, then:  
A) recursive relationships must be established through the use of recursive foreign keys  
B) a separate relation with a primary key that is the composite of the primary keys of each of the participating entities is created  
C) separate relations are established for each class and for each of the subclasses  
D) use the primary key of relation A as a foreign key in relations B and C

...

A many-to-many relationship that associates certain items with their component items is called a:  
  
A) binary structure  
B) bill-of-materials structure  
C) binary relationship  
D) ternary relationship

B

For a unary M:N relationship:  
  
A) the entity type is modeled as one relation; using as its primary key a composite key, a separate relation is created to represent the M:N relationship  
B) the entity type and the M:N relationship are modeled as one relation; a composite key is used  
C) separate relations for the class and for each subclass are created; primary and foreign keys are established for each class  
D) the primary key of the entity on the one side of the relationship serves as a foreign key in the relation on the many side of the relationship

A

Merging relations is also referred to as:  
A) view integration  
B) view consolidation  
C) encompassing  
D) normalizing

A

A single name that is used for two or more different attributes best defines:  
  
A) homonym  
B) synonym  
C) transitive dependency  
D) alias

A

A named set of rows and columns that specifies the fields in each row of the table best describes:  
  
A) relation  
B) data structure  
C) entity type  
D) physical table

D

The process of splitting or combining normalized relations into physical tables based on affinity of use of rows and fields best describes:  
A) normalization  
B) simplification  
C) denormalization  
D) data structure

C

A field of data that can be used to locate a related field or row of data best describes:  
  
A) pointer  
B) marker  
C) field locator  
D) reference locator

A

The index file organization:  
A) provides very fast random retrieval on the primary key  
B) provides slow random retrieval on the primary key  
C) provides moderately fast random retrieval on the primary key  
D) does not provide random retrieval on the primary key

C



Relation

A named two-dimensional table of data. Each relation consist of a set of named columns and an arbitrary number of unnamed rows.

Well- structured relation

A relation that contains a minimum amount of redundancy and allows users to insert, modify, and delete the rows without errors or inconsistencies.

Normalization

- The process of converting complex data structures into simple stable data structures.

Functional dependency

- A particular relationship between two attributes.

2NF

- A relation for which every nonprimary key attribute is functionally dependent on the whole primary key.

3NF

- A relation that is in second normal form and that has no functional (transitive) dependencies between two (or more) nonprimary key attributes.

Foreign key

- An attributes that appears as nonprimary key attribute in one relation and as a primary key attribute ( or part of a primary key ) in another relation.

Referential integrity

An integrity constraint specifying that the value (or existence) of an attribute in one relation depends on the value (or existence) of the same attribute in another relation.

Recursive foreign key

- A foreign key in a relation that references the primary key values of that same relation.

Synonym

- Two different names that are used for the same attribute.

Homonym

- A single attribute name that is used for two or more different attributes.

Field

The smallest unit of named application data recognized by system software.

Data type

- A coding scheme recognized by system software for representing organizational data.

Calculated field

- A field that can be derived from other database fields.

Default value

- A value a field will assume unless an explicit value is entered for that field.

Null value

- A special field value distinct from a zero blank or any other value that indicates that the value for the field is missing or otherwise unknown.

Physical table

- A named set of rows and columns that specifies the fields in each row of the table.

Denormalization

The process of splitting or combining normalized relations into physical tables based on affinity of use of rows and fields.

Physical file

- A named set of table rows stored in contiguous section of secondary memory.

File organization

A technique for physically arranging the records of a file.

Pointer

A field of data that can be used to locate a related field or row of data.

Sequential file organization

The rows in the file are stored in sequence according to a primary key value.

Indexed file organization

The rows are stored either sequentially or nonsequentially and an index is created that allows software to locate individual rows.

Index

A table used to determine the location of rows in a file that satisfy some condition.

Secondary Key

One or a combination of fields for which more than one row may have the same combination of values.

Hashed file organization

The address for each row is determined using an algorithm.

Primary Key

- An attribute whose value is unique across all occurrences of a relation

Relational database model

Data represented as a set of related table or relations.

acceptance test

Testing involves the entire information system, including all typical processing situations. During an acceptance test, users enter data, including samples of actual, or live data, perform queries, and produce reports to simulate actual operating conditions. All processing options and outputs are verified by users and the IT project development team to ensure that the system functions correctly. Sometimes known as a system test.

application development

The process of constructing the programs and code modules that are the building blocks of an information system. Application development is handled by an application development group within a traditional IT department that is composed of systems analysts and programmers who handle information system design, development, and implementation.

bug tracking software

System developers use defect tracking software, sometimes called bug tracking software, to document and track program defects, code changes, and replacement code, called patches.

Capability Maturity Model (CMM)

A model developed by SEI that integrates software and systems development into a process improvement framework.

coding

The process of turning program logic into specific instructions that a computer system can execute.

cohesion

A measure of a module's scope and processing characteristics. A module that performs a single function or task has a high degree of cohesion, which is desirable.

condition

A specified action or state in a structure chart. A line with a diamond on one end represents which of the following in a structure chart

control couple

In a structure chart, a control couple shows a message, also called a flag, which one module sends to another. An arrow with a filled circle represents a control couple

control module

In a structure chart, a control module is a higher-level module that directs lower-level modules, called subordinate modules.

coupling

Measures relationships and interdependence among modules. The opposite of cohesion.

customer

Primary user of a system, service, or product.

data conversion

Existing data is loaded into the new system, transformed as needed. Depending on the system, data conversion can be done before, during, or after the operational environment is complete.

data couple

In a structure chart, a data couple shows data that one module passes to another. An arrow with an empty circle represents a data couple

defect tracking software

System developers use defect tracking software, sometimes called bug tracking software, to document and track program defects, code changes, and replacement code, called patches.

design walkthrough

A session with users to review the interface with a cross-section of people who will work with the new system. This is a continuation of the modeling and prototyping effort that began early in the systems development process.



(T/F) Interface design focuses on how information is provided to and captured from users.

True

(T/F) The major deliverable from system interface and dialogue design is user acceptance testing results.

False

(T/F) A conversation is a method by which users interact with information systems.

False

(T/F) The variations in menu design are often related to the capabilities of the development environment, the skills of the developer, and the size and complexity of the system.

True

(T/F) A linear menu is a menu positioning method that places the access point of the menu near the top line of the display.

False

(T/F) Context-sensitive interaction is a highly intuitive human-computer interaction method whereby data fields are formatted in a manner similar to paper-based forms.

False

(T/F) Menus are the most common method for implementing object-based interaction.

False

(T/F) The selection of devices users will use for interaction is made during implementation.

False

(T/F) When using a touch screen, usability problems may occur in the areas of visual blocking, user fatigue and movement scaling.

False

(T/F) When using a mouse, usability problems may occur in the areas of movement scaling and adequate feedback.

True

(T/F) ) When comparing input devices, a touch screen is the most preferred for data entry.

False

(T/F) Referencing interface layout guidelines, the standard screen navigation that users use to move between fields should be from left-to-right and top-to-bottom.

True

(T/F) Referencing interface layout guidelines, users should not be able to access areas of the screen not used for data entry or commands.

True

(T/F) Referencing interface layout guidelines, data should not be permanently saved by the system until the user makes an explicit request to do so.

True

(T/F) When structuring data entry, users should be required to enter the current date and time.

False

(T/F) When structuring data entry fields, the system should automatically justify data entries.

True

(T/F) When a transcripting data error occurs, additional characters have been added to a field.

False

(T/F) The size validation test checks for too few or too many characters.

True

(T/F) A reasonableness validation test checks to see if a social security number is exactly nine digits.

False

(T/F) An audit trail is a record of the sequence of data entries and the date of those entries.

True

(T/F) Error messages should appear in roughly the same format and placement each time.

True

(T/F) Conversation refers to the sequence of interaction between a user and a system.

False

(T/F) Building dialogue prototypes and assessing usability are often optional activities.

True

(T/F) Placing a menu in the same location on every Web page helps customers to more quickly become familiar with a Web site and more rapidly navigate through the site.

True

(T/F) Web tabbing is a technique for showing users where they are in a Web site by placing a series of "tabs" on a Web page that shows the users where they are and where they have been.

False

(MC) Interface design focuses on:

A) how information is provided and captured from users  
B) the design of forms and reports  
C) the logical design of system files and databases  
D) turning design specifications into working computer code  
Answer: A

(MC) A method by which users interact with information systems defines:

A) dialogue  
B) discussion  
C) interface  
D) session  
Answer: C

(MC) A human-computer interaction method where a list of system options is provided and a specific command is invoked by user selection of a menu option is:

A) natural language interaction  
B) menu interaction  
C) form interaction  
D) object-based interaction  
Answer: B

(MC) The variation of menu design is most often related to:

A) the capabilities of the development environment  
B) the skills of the developer  
C) the size and complexity of the system  
D) all of the above  
Answer: D

(MC) This type of menu positioning method places the access point of the menu near the top line of the display; when accessed, menus open by dropping down onto the display.

A) pop-up menu  
B) drop-down menu  
C) box menu  
D) cursor menu  
Answer: B

(MC) Grouping related options together and requiring the same option to have the same wording and codes each time it appears refers to the:

A) wording guideline for menu design  
B) selection guideline for menu design  
C) organization guideline for menu design  
D) highlighting guideline for menu design  
Answer: C

(MC) An effectively designed form:

A) minimizes the need to scroll windows  
B) provides default values when practical  
C) displays data in appropriate field lengths  
D) does all of the above  
Answer: D

(MC) A highly intuitive human-computer interaction method where data fields are formatted in a manner similar to paper-based forms defines:

A) form interaction  
B) menu interaction  
C) object-based interaction  
D) command language interaction  
Answer: A

(MC) An icon is:

A) a small vertical lever mounted on a base that steers the cursor on a computer display  
B) a graphical picture that reflects specific functions within a system  
C) a button on the mouse that tells the system when an item is selected  
D) a sphere mounted on a fixed base that steers the cursor on a computer display  
Answer: B

(MC) A human-computer interaction method where inputs to and outputs from a computer-based application are in a conventional spoken language such as English refers to:

A) natural language interaction  
B) command language interaction  
C) native language interaction  
D) assembly language interaction  
Answer: A

(MC) The most fundamental and widely used hardware device used to support system interaction is the:

A) mouse  
B) trackball  
C) keyboard  
D) light pen  
Answer: C

(MC) Potentially high usability problems for some applications exist for keyboards in all of the following areas except:

A) adequate feedback  
B) speed  
C) movement scaling  
D) visual blocking  
Answer: D

(MC) The most preferred input device for text correction is the:

A) mouse  
B) keyboard  
C) trackball  
D) light pen  
Answer: D

(MC) When designing the navigation procedures within your system, the primary concerns are:

A) the design of between-field navigation and the ability to provide feedback  
B) grouping data fields into logical categories and assigning group labels  
C) flexibility and consistency  
D) accuracy and reliability  
Answer: C

(MC) Which of the following is not a rule for structuring data entry fields?

A) Never require the user to enter information that is already available within the system.  
B) Users should not be required to enter information that can be easily computed by the system.  
C) Require users to specify the dimensional units of a particular value.  
D) All data entered onto a screen should automatically justify in a standard format.  
Answer: C

(MC) Which of the following is not a rule for structuring data entry fields?

A) Never require data that is already on-line or that can be computed.  
B) Always provide default values when appropriate.  
C) Never justify data entries.  
D) Always place a caption adjacent to fields.  
Answer: C

(MC) Entering invalid data into a field describes:

A) transposing  
B) transcripting  
C) appending  
D) truncating  
Answer: B

(MC) Testing to assure that data conforms to a standard format is the purpose of the:

A) missing data validation test  
B) pictures templates validation test  
C) reasonableness validation test  
D) size validation test  
Answer: B

(MC) The sequence of interaction between a user and a system refers to:

A) interface  
B) discussion  
C) dialogue  
D) session  
Answer: C

(MC) All dialogue design rules are mitigated by the:

A) feedback guideline  
B) consistency guideline  
C) ease guideline  
D) control guideline  
Answer: B

(MC) The guideline specifying that dialogues be simple for users to enter information and navigate between screens is:

A) navigation  
B) ease  
C) shortcuts and sequence  
D) reversal  
Answer: B

(MC) A formal method for designing and representing human-computer dialogues using box and line diagrams is referred to as:

A) interface design  
B) dialogue diagramming  
C) state-transition diagramming  
D) entity-relationship diagramming  
Answer: B

(MC) The common property of windows and forms in a graphical user interface environment that requires users to resolve the request for information before proceeding is:

A) maximize  
B) movable  
C) modality  
D) system menu  
Answer: C

(MC) A technique for showing a user where they are in a Web site by placing a series of "tabs" on a Web page that shows a user where they are and where they have been best describes:

A) icons  
B) lightweight images  
C) cookie crumbs  
D) MPEG files  
Answer: C

(SA) An \_\_\_\_\_\_\_\_ is a method by which users interact with information systems.

Interface

(SA) \_\_\_\_\_\_\_\_ refers to a human-computer interaction method where a list of system options is provided and a specific command is invoked by user selection of a menu option.

Menu interaction

(SA) A \_\_\_\_\_\_\_\_ is a menu positioning method that places the access point of the menu near the top line of the display; when accessed, menus open by dropping down onto the display.

Drop-down menu

(SA) \_\_\_\_\_\_\_\_ is a human-computer interaction method where symbols are used to represent commands or functions.

Object based interaction

(SA) \_\_\_\_\_\_\_\_ is a human-computer interaction method whereby inputs to and outputs from a computer-based application are in a conventional speaking language such as English.

Natural language interaction

(SA) \_\_\_\_\_\_\_\_ is the type of data error that adds additional characters to a field.

Appending

(SA) \_\_\_\_\_\_\_\_ is the type data error that occurs when invalid data are entered into a field.

Transcripting

(SA) A \_\_\_\_\_\_\_\_ validation test checks to see if the value combinations of two or more data fields are appropriate or make sense.

Combination

(SA) A \_\_\_\_\_\_\_\_ validation test assures that data conform to a standard format.

Pictures/ templates

(SA) An \_\_\_\_\_\_\_\_ is a record of the sequence of data entries and the date of those entries.

Audit trail

(SA) The sequence of interaction between a user and a system is called a \_\_\_\_\_\_\_\_.

Dialogue

(SA) The \_\_\_\_\_\_\_\_ common property of windows and forms in a graphical user interface environment requires users to resolve the request for information before proceeding.

Modality

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